

STAFF REPORT
WASTE DISCHARGE REQUIREMENTS
FOR
OAKWOOD LAKE WATER DISTRICT AND BECK PROPERTIES, INC.
WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

INTRODUCTION

Oakwood Lake Water District and Beck Properties, Inc. are constructing a wastewater facility for a new residential and commercial development. Because land development will be performed in phases, construction of the recycled water storage ponds and land application areas will also be phased. The Wastewater Treatment Plant (WWTP) includes the wastewater treatment equipment, wastewater collection system, recycled water storage ponds, recycled water delivery system, and land application areas. Beck Properties, Inc. owns portions of the land application areas; Oakwood Lake Water District owns the mechanical treatment equipment. Oakwood Lake Water District and Beck Properties are jointly referred to as "Discharger."

The facility is presently treating a small amount of wastewater generated at a mobile home park. The mobile home park was part of the Oakwood Lake Resort, which included a water slide, campground, and a concert venue. Although the resort closed in approximately 2005, the mobile homes are still occupied. Presently, the WWTF is being expanded to provide better treatment for wastewater that will be generated in the future land development. The existing discharge is regulated by Waste Discharge Requirements (WDRs) Order No. 5-01-113. The existing Order allowed a wastewater flow rate up to 81,000 gpd. But the Environmental Impact Report prepared for the new development prohibited the existing wastewater system from treating wastewater from the new development. Therefore, an upgraded wastewater treatment system has been constructed.

Initially the flow limit will allow discharge of up to 15,000 gallons per day (gpd) to the existing facility. Continued construction will be performed in phases; the first phase will allow treatment of approximately 55,000 gpd of domestic wastewater. The second phase of development is expected to generate 136,200 gpd. Treatment system equipment, recycled water storage ponds, and some land application areas will be constructed as part of the Phase I development. Additional land application areas and recycled water storage ponds will be constructed in Phase II.

The Discharger has stated that it intends to connect to the City of Manteca wastewater collection system when capacity in that system is available. The Discharger anticipates capacity should be available in 10 to 15 years.

Wastewater Treatment

The treatment facility will provide tertiary treatment and disinfection using a Sequential Batch Reactor (SBR) system. The treatment system consists of screening, SBR, flow equalization, sand filtration, disinfection, effluent pumping, recycled water storage, and land application. Sludge will be digested and stored on-site pending off-site disposal. Wastewater will be delivered to the treatment system from three pump stations; one located adjacent to the treatment facility site and two located within the housing developments.

Addition of storage ponds and land application areas can be accomplished through submittal of technical reports and Recycled Water Expansion Reports (RWERs) that must be approved by the Executive Officer prior to increased discharge. This Order will allow the wastewater flow rate to grow to a maximum of 136,200 gpd. However, it does not guarantee that the maximum wastewater flow rate will be allowed. The Discharger has identified approximately 30 acres of land application areas, and 50.3 ac•ft of storage pond capacity.

All the wastewater treatment, treatment and/or storage ponds, and recycled water storage ponds will be lined with 40-mil thick HDPE liners. An emergency storage reservoir will be available for storage of wastewater during a malfunction of the treatment facility and when effluent does not meet effluent requirements. The wastewater system includes provisions for component malfunction and primary power outage. Critical mechanical components have duplex units or available spare parts. The control system will monitor the status and performance of equipment. An alarm will automatically dial system operators if a problem is detected by the control system. A 100-kilowatt standby power generator will be available for use during power failures and will automatically start in the event of a power outage. The generator will also power the wastewater lift station adjacent to the treatment facility. Operation of the generator will alert operating personnel to the malfunction.

Land Application Areas and Recycled Water Storage Ponds

Recycled water will be applied during spring, summer, and fall months but if conditions allow, application during winter months is acceptable. Recycled water will be applied to cropped land application areas. Land application areas consist of landscaped areas and turf areas. Recycled water will be applied by drip irrigation or sprinklers to plants at nutrient and hydraulic uptake rates. Irrigation tailwater will be controlled using perimeter berms, grading the area to prevent off-site drainage, and/or management controls.

Solids and Biosolids Disposal

Screenings and grit removed from the wastewater will be dewatered and sent to a dumpster, prior to being hauled off-site to the local landfill for disposal. Sludge will be discharged to the sludge storage basin for digestion and thickening. Decant water from the basin will be returned to the SBR pond. Sludge will be hauled off-site for disposal.

Recycled Water Expansion Reports

Wastewater flow rate increases can be accomplished through submittal of RWERs and approval, as appropriate, by the Executive Officer. Because sufficient information on all potential land application areas is not presently available, the Discharger will perform the technical studies to evaluate if a proposed land application area is acceptable for use. The contents of an RWER are described below. (Note that other technical studies are also required but not discussed below, for example, prior to new groundwater monitoring wells being installed, workplans must be approved).

1. An updated water balance projecting the wastewater flow capacity resulting from the planned expansions and demonstrating compliance with the Discharge Specifications. The water balance shall include data gathered in monitoring since the last RWER was prepared and make

adjustments to calculations as needed. If inadequate land application acreage is available, future wastewater flow rate limits may be lower than anticipated.

2. Groundwater monitoring is required at large land application areas, but smaller land application areas may not have groundwater monitoring directly associated with each area. The approach is intended to identify groundwater degradation, if it exists, at locations where it is most likely to occur (where more wastewater is being applied). A minimum of two sample events is required prior to submitting the RWER. Groundwater monitoring will be required at all recycled water storage pond locations.
3. Documentation that notification signs are installed as required by the Water Recycling Specification E.3. The signs are needed so that the public is informed of the use of recycled water and that the discharge complies with Title 22 Section 60310(g).
4. Updates to the As-Built Report, Recycled Water Irrigation Application Plan, and Sewer System Management Plan. Updates to these reports are needed so that the wastewater treatment operator has clear guidance on how the wastewater system was designed.

PUBLIC COMMENTS ON TENTATIVE ORDER

The tentative Order was transmitted for public review on 29 August 2006. Comments were received from the Discharger's consultant (Allied Engineers) and the California Sportfishing Protection Alliance (CSPA). The comments were received within the comment period. Copies of the comment letters are provided as attachments. The comments are discussed below:

Discharger Comments

The Discharger's comments are presented in a 27 September 2006 letter. Many of the Discharger comments were clarifications or changes to the treatment system design and were incorporated into the tentative order. The Discharger's comment is paraphrased in italics and staff's response is presented below.

Comment No. 1 stated the disinfection contact basin construction design has changed from a lined basin to a 24-inch diameter pipe.

This change was transmitted to the Department of Health Services (DHS) for review. DHS granted a conditional approval for the change in a 20 June 2006 letter that required submittal of design features before initiating construction of the chlorine contact chamber. Written approval from DHS is required. Alternatively, a tracer study demonstrating the required minimum contact time can be provided. Staff added text to Provision G.1.e.i to clarify the requirement for DHS approval of the disinfection system as follows:

Documentation of operational status of the wastewater treatment system and compliance with all requirements for disinfection system performance. The documentation shall include written approval of the disinfection system from DHS as required by the 20 June 2006 Oakwood Lake Water District letter prepared by DHS.

Comment No. 2 presented text to clarify the flow limit totals described in Finding No. 8.

Staff revised Finding No. 8 to clarify the flow limit totals as follows:

The WWTP is being constructed to treat wastewater from new residential and commercial developments. The developments will be constructed in phases; initially, the existing flow from the mobile home park will be treated (approximately 15,000 gallons per day (gpd)). The first phase of development will generate a total of approximately 55,000 gpd of domestic wastewater. The second phase of development is expected to bring the total wastewater flow rate to generate 136,200 gpd. The treatment system equipment will be constructed as part of the Phase I development. Land application areas and recycled water storage ponds will be constructed in phases.

Comment No. 3 presented text to describe a change in the wastewater flow path as a result of a design change.

Staff revised Finding No. 18 to clarify the wastewater flow path as follows:

Disinfected wastewater will flow by gravity to the effluent storage equalization basin. From the effluent storage equalization basin the treated wastewater will be pumped to lined recycled water storage reservoirs.

Comment No. 4 presented a change in the effluent storage basin capacity based on a change in the basin design.

Staff revised the table in Finding No. 24 to correct the storage capacity for the effluent storage basin capacity from 300,000 gallons to 330,000 gallons.

Comment No. 5 addressed changes in the names of ponds on Attachment B and D as well as a change in the flow chart that changed where the diversion into the Emergency Storage Pond is located.

California Sportfishing Protection Alliance Comments

The California Sportfishing Protection Alliance (CSPA) comments are presented in a 28 September 2006 letter. Many of CSPA's comments were incorporated into the tentative Order. CSPA's comments are paraphrased in italics and staff's response is presented below.

Comment No. 1 states the tentative Order subverts the Water Quality Enforcement Policy by not including enforcement addressing existing groundwater pollution at the existing facility.

The proposed Order does not include enforcement regarding the existing conditions but the new treatment system includes several Best Practicable Treatment and Control (BPTC) measures, which will result in better quality wastewater being applied to land. Any enforcement order that would be

proposed for the wastewater system would include implementation of such measures. For example, the previous ponds that were operated by Oakwood Lake Resort to treat wastewater were unlined and percolation of wastewater through the ponds occurred. The new ponds being constructed will include HDPE liners that will reduce the rate of leakage. Therefore, staff believes the improvements under construction will result in a diminished threat to groundwater quality.

CSPA is correct in describing some groundwater quality as polluted, but the source of the wastes is not clear in the areas where no waste has been applied. For example, the highest TDS concentration in groundwater is reported at Wells MW-5, MW-6, and MW-7, where concentrations are approximately 870 to 1,000 mg/L. But no waste application has begun in that area. That concentration seems to represent the background groundwater quality for that area. Similarly, the highest concentrations of nitrate were reported at the same wells.

However, elevated nitrate concentrations also exist at the WWTP and considering the background source of water at that location is the San Joaquin River, it is reasonable to attribute the nitrate concentrations to the WWTP operation. Because the new wastewater ponds will be lined, percolation of waste constituents to groundwater will be limited. In addition, the application of recycled water will be at plant uptake rates that will result in waste constituents being taken up by the plants grown in the land application areas.

Comment No. 2 states alternate disposal options were not considered and discharges from collection system piping constitute raw sewage discharges.

Staff agrees it would be preferable for the Discharger to discharge to a regional wastewater facility and the Discharger has stated the wastewater system under construction is an interim system that will be used until capacity is available to connect to the City of Manteca system. Connection to a regional system is consistent with the approach described in the *Guidelines for Waste Disposal from Land Developments*, attached to the Fourth Edition, Water Quality Control Plan (Basin Plan) which states:

The Board believes that individual disposal systems should not be used where community systems are available and that every effort should be made to secure public sewer extensions, particularly in urban areas. Where connection to a public sewer is not feasible and number of residences are to be served, due consideration should be given to construction of a community sewage treatment and disposal system.

In the September 2005 RWD, the Discharger states, "Every effort will be made by the OLWD to cooperate with the City of Manteca to obtain wastewater service from them." The RWD also includes an Infrastructure Entitlement Timeline. However, financing is not addressed in the RWD. Because connection fees would be difficult to collect from individual homes once the homes are occupied, and the connection fee should rightly be paid by the original owner of the residence, the following provision was added to the proposed Order:

By 23 February 2007 the Discharger shall submit a report that describes the procedure that will be followed to connect the wastewater discharge to the City of Manteca or other regional

treatment plant. The report shall include a schedule of implementation and a financing plan. The schedule of implementation shall include dates by which payments will be made to the regional plant to purchase capacity in future expansions. The schedule shall provide for connection to the regional treatment plant by **26 October 2016**.

With respect to the collection system discharging raw sewage, the comment is correct, all collection systems are expected to leak at some point in their service life. The collection system being installed at Oakwood Lake Water District will consist of gasketed polyvinyl chloride (PVC) pipe, which is intended to prevent infiltration and inflow. Most of the existing collection system associated with the previous use as Oakwood Lake Resort will be abandoned but the collection system associated with the existing mobile home park is not planned for removal. The Discharger has stated if excessive inflow and infiltration in that area is identified, portions of the collection system will be replaced as needed.

The Order requires the Discharger to prepare and implement a *Sewer System Management Plan* (SSMP) consistent with State Water Resources Control Board (State Water Board) Order No. 2006-0003-DWQ. However, the tentative Order Provision G.1.g requires the Discharger to complete portions of the SSMP sooner than required in the State Board order. The State Board Order has a procedure for reporting wastewater spills that is in addition to Standard Provision No. B.1 which requires notification of any noncompliance, including wastewater spills although minor leakage to groundwater from collection system piping would not constitute a reportable spill.

Comment No. 3 states the tentative Order contains inadequate information regarding the treatment system.

In general, WDRs do not contain detailed descriptions of the wastewater treatment system or make recommendations on the design of the system. This approach is consistent with Water Code Section 13360, which states:

No waste discharge requirement or other order of a regional board or the state board or decree of a court issued under this division shall specify the design, location, type of construction, or particular manner in which compliance may be had with that requirement, order, or decree, and the person so ordered shall be permitted to comply with the order in any lawful manner.

As a result, WDRs include effluent limits that are protective of groundwater quality but no guidance on how that limit is achieved. Because the comment included specific information requests, staff obtained the information from the Discharger's consultant and the questions are presented and answered below.

Will the WWTP have multiple filter units and what is the maximum hydraulic loading rate per square foot of filter media?

Staff note that Finding No. 16 of the proposed Order states duplex sand filters will be used to remove suspended solids in the wastewater that remains after clarification. The Discharger provided the following information:

The pressure sand filters will consist of two 7-foot diameter units each with a hydraulic loading rate of 3.6 gpm per square foot of surface area at design filter flow of 140 gallons per minute.

Comment No. 4 states the Order fails to include discharge specification for the proper operation and maintenance of land application areas. The comment also states land application areas are not accurately described as an integral part of the treatment facility, agronomic rate is not defined, nitrogen application is inadequately controlled, and the ratio of carbon, nitrogen, and phosphorus in treated wastewater is not defined.

Staff agrees that in land treatment, crops and soil microorganisms are important components of the waste treatment. In general, the higher the level of treatment prior to application, the less important the component of land treatment. In this case, the wastewater treatment is tertiary disinfected recycled water. Generally that would mean a higher recycled water application rate might be acceptable. Despite the higher level of treatment, the discharge will occur at plant uptake rates for both nitrogen compounds and water application. TDS compounds are more problematic and are best controlled using source control.

The Order uses the term “agronomic” to mean application of recycled water at hydraulic and nutrient uptake rates. To clarify the meaning of the term, the Order has been modified as follows:

Finding No. 32 was changed to read:

Effluent will be applied at plant uptake ~~agronomic~~ rates for both nitrogen and water application. Irrigation tailwater will be controlled through such measures as perimeter berms and/or grading the area to prevent off-site drainage

Finding No. 59.f was changed to read:

Recycled water application at crop uptake (for nitrogen and water) ~~agronomic application~~ rates.

Water Recycling Specification E.8 was changed to read:

Application rates for recycled water shall not exceed nitrogen and water uptake rates ~~agronomic rates~~ considering the plant/crop, soil, climate, and irrigation management system in accordance with the water balance submitted with the RWD.

The following Discharge Specification was added (No. B.5) to the Order to address total nitrogen application.

The maximum total nitrogen loading to each land application area shall not exceed the plant uptake rate for plant available nitrogen (PAN) for the type of plant to be grown, as specified in the most recent edition of the Western Fertilizer Handbook or similar publication unless and until the Discharger demonstrates that another proportion is technically justified. PAN

shall be calculated as 100% of the total nitrogen content of the waste plus nitrogen contributions from all other sources, including supplemental fertilizers.

Staff has not included limits related to the ratio of carbon, nitrogen, and phosphorous or required dischargers to amend their wastewater to achieve the optimum ratios. Instead, staff has imposed wastewater effluent limits and the Discharge Specification B.4, which states:

Wastewater treatment and use of recycled water shall not cause pollution or a nuisance as defined by Section 13050 of the CWC.

That limit is also included in Discharge Specification B.7.

No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.

Comment No. 5 states the Order fails to demonstrate that chlorination is BPTC and that trihalomethanes will be generated as a by-product of disinfection.

Use of sodium hypochlorite is in common use as a disinfection process. Staff agrees there are advantages to using an Ultra Violet (UV) disinfection system; specifically there is no increase in TDS as a result of disinfection. Staff notes that the Controllable Factors Policy states, "Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded." In this case, groundwater quality varies greatly across the site as described in the response to CSPA Comment No. 1. BPTC measures must be implemented as needed to prevent further degradation of groundwater quality but the Discharger is not required to improve the groundwater quality through the discharge. When the Discharger submits a RWER, groundwater conditions will be evaluated and if degradation is apparent, additional BPTC measures can be imposed prior to allowing the expansion, if the expansion is appropriate.

When using chlorination for disinfection, trihalomethanes are often generated. Because the recycled water storage ponds are lined with HDPE liners little leakage is anticipated. Volatilization of trihalomethanes is expected from the ponds and when applied, especially when spray applied. Groundwater monitoring for THMs is included in the Monitoring and Reporting Program (MRP) so that if THMs become a groundwater contaminant, their presence will be detected and changes to the recycled water can be required.

Comment No. 6 states the Order fails to demonstrate that a single liner is BPTC and that the design lacks redundant features required by Title 22.

Use of a single liner for non-designated waste has been considered BPTC in the Waste Discharge to Land Unit, which addresses lower threat wastewater than some other programs. Because the previous

wastewater system operated without synthetic liners, staff believes the use of single liners will be a significant improvement.

Staff contacted DHS (the State agency that implements the Title 22 regulations) to inquire if the design complies with the redundancy features required by Title 22. DHS provided the following evaluation on 3 October 2006 via e-mail:

Up until December 2000, primary effluent for recycled water use was allowed and the reliability feature required includes multiple primary treatment units that allow one unit to be out of service or long term storage or disposal provisions. In December 2000, the use of primary effluent was no longer allowed and Section 60309 of Title 22 CCR was repealed.

For biological treatment such as the SBR, Section 60345 requires biological treatment unit to provide one of four reliability features, (a) alarm/multiple biological treatment units (b) alarm, short-term retention or disposal provisions, and standby replacement equipment, (c) alarm/long-term storage or disposal provisions, and (d) automatically actuated long-term storage or disposal provisions. Section 60341 (a) allows for short-term retention or disposal provisions as a reliability feature. Short term retention consist of facilities reserved for the purpose of storing or disposing of untreated or partially treated wastewater for at least a 24 hour period. All of the equipment other than the pump back equipment shall be either independent of the normal power supply or provided with a standby power source. For the Oakwood Lake system, (b) is the choice. In the June 20, 2006 letter, the Department mentioned that the back up battery power for the alarm system must be at a minimum the longest time interval between plant checks by the operator (s). The aerators will be accessible from the outside the aeration basin so dewatering will not be required for repair of the aerators. Alarm capability, standby aeration equipment, and dual clarifiers will be provided. SBR has two reactors with a baffle in between. The total volume is 200,000 gallons with an average wastewater flow of 136,000 gallons per day. Four complete cycles of the SBR is expected to occur every day. From the drawings, it appears there is a wastewater inlet to each basin unit.

For the coagulation process, there are two coagulant pumps with one as a backup. Also, Section 60349 identifies alarm, short-term retention or disposal provisions, and standby replacement equipment as a reliability feature. Please note in the June 20, 2006 letter, the Department's requirements for coagulation.

The filtration process, two filters are provided with one as a backup. Again, Section 60351 identifies short-term retention with alarm and standby replacement equipment as a reliability feature.

For the chlorine disinfection, there are two chlorine feed pumps. It's possible one can be used as a backup. Again, Section 60353 identifies short-term retention with alarm and standby replacement equipment as a reliability feature.

Emergency storage is 144,000 gallons and the flow equalization pond holds 77,000 gallon of which 30,000 gallons can provide emergency storage. If Title 22 standards are exceeded, the filter feed pumps will be turned off and water will be diverted to emergency storage tank which will eventually be pumped back to the headworks. The decanted water from the sludge basin also goes back to the headworks. I don't see in the engineering report where it indicates the sludge storage basin will be storing recycled water. I'm assuming if the equalization pond is used as emergency storage, it also returns to the headworks.

To clarify the need for filtration as described in DHS's 20 June 2006 review of the Discharger's Title 22 report, staff have added the following new Discharge Specification B.18 to the Order:

Coagulation shall be practiced at all times when the SBR effluent is pumped to the filtration units.

Comment No. 7 states the Order fails to restrict application of designated waste thereby creating pollution.

Staff disagrees that the wastewater should be classified as designated waste, and the discharge of domestic waste is exempt from regulation under Title 27 Section 20090(a). The comment compares the estimated TDS concentration in the recycled water (710 mg/L) to the groundwater quality of the drinking water supply well (410 mg/L). This comparison is inappropriate because the drinking water well is screened in a lower aquifer that is confined below an aquitard. An appropriate comparison is to compare the recycled water quality to the shallow groundwater quality. As described in the response to CSPA Comment No. 1, groundwater quality varies across the site.

In the area where the treatment system will be constructed, the background groundwater TDS concentration is approximately 536 mg/L. There is expected to very limited wastewater application at the WWTP because the ponds are all lined with HDPE liners and only 0.12 acres of turf will be irrigated with the recycled water.

At the northeast portion of the facility, the background TDS concentration is approximately 877 mg/L. It is unknown why the area has an elevated TDS concentration because no waste has been applied there yet. The background groundwater concentration indicates the recycled water application should not impact groundwater quality.

Comment No. 8 states the Order must prohibit discharge when soils are saturated.

Staff notes that Water Recycling Specification E.11 prohibits irrigation when the land application area is saturated, as follows:

Irrigation with recycled water shall not be performed within 24 hours of a forecasted storm, during or within 24 hours after any precipitation event, nor when the ground is saturated.

Staff agrees that groundwater levels can be shallow during wet periods and that more unsaturated zone is preferable when applying wastewater to land application areas, because as previously stated, the soil acts as part of the treatment process. However, not all locations in the Central Valley Region have the desirable depth to groundwater. To limit all wastewater application to areas that have deep groundwater would severely limit land treatment as a recycled water beneficial reuse. When groundwater conditions are less than optimum, one way to address the problem is to increase wastewater quality. In this case, the Discharger is producing Title 22 disinfected tertiary recycled water. The higher quality of recycled water means that other concerns, such as pathogen reduction as wastewater percolates through soil is a lower concern.

While groundwater is always relatively shallow in the area (within 20 feet of the ground surface), it is especially shallow during the winter and spring runoff period when river stages are higher. The issue is addressed by requiring the Discharger to have adequate storage for recycled water during the seasons when crop irrigation is not needed, when soil conditions are not suitable for wastewater application, and during rain events. The tentative Order requires the Discharger to maintain adequate storage to store that recycled water through the wet seasons and be able to contain the 100-year return annual total precipitation. The Discharger will construct the needed storage capacity and land application areas based on the RWD water balance.

Water Recycling Specification E.5 requires a 50-foot setback from a land application area to surface water. This setback requirement will ensure waste treatment occurs in the soil and that considerable mixing and dilution of waste constituents that survive the land treatment (such as fixed dissolved solids), occurs before any discharge to a surface water body might occur.

Comment No. 9 states the Order must revise the total coliform effluent limitation, the groundwater is already polluted for total coliform, and the shallow groundwater will result in direct discharge of coliform bacteria into groundwater.

The total coliform effluent limitation is consistent with the definition of tertiary recycled water as defined by Title 22. Because turbidity and disinfection effectiveness are closely related, the Order includes Effluent Limitations for both coliform and turbidity.

Title 22 Section 60301.230 defines the allowable coliform concentration. The Order's Effluent Limitation No. C.2 is consistent with the applicable Title 22 Section. Title 22 Section 60301.320 defines the allowable turbidity for filtered wastewater. The Order's Effluent Limitation No. C.3 is consistent with the applicable Title 22 section.

CSPA states the discharge will be directly into groundwater, but staff believes that would be an unusual occurrence for the following reasons. The Discharger has stated the development elevation will be approximately 12 feet above mean sea level (msl); groundwater elevations will likely be similar to the Oakwood Lake water elevation (estimated by Kleinfelder, Inc. to be 2.8 to 4.3 feet above msl¹).

¹ Data from 23 February 2006 Groundwater Modeling Evaluation Report prepared by Kleinfelder, Inc. that was included in the 24 March 2006, Incomplete Report of Waste Discharge Report, prepared by Oakwood Lake Water District.

Assuming the subsurface emitters are buried at a depth of one foot, an unsaturated zone of approximately 6.7 feet will exist. Therefore, in normal operation the groundwater will not be in contact, or excessively close to the subsurface emitters. Kleinfelder has estimated the maximum Oakwood Lake water elevation to be 8 feet msl during the wet season. In that case, approximately 3 feet of unsaturated zone below the emitters would exist. However, the Order requires adequate wastewater storage (including imposing the 100-year return annual total rainfall amount) so that recycled water can be stored rather than applied during the wet periods.

The source of coliform in groundwater could be from waste application but considering no waste application has occurred in the nearby area at the northeast and southeast areas, staff believe the detections are more likely the result of poor sampling practices that contaminated the samples. Text has been added to the Order that requires the Discharger to include groundwater well disinfection methods, implementation of the disinfection portions of the workplan, and a new provision that requires a Groundwater Well Disinfection Report.

The following text was added to Provision G.1.b:

...The system shall be designed to yield samples representative of the uppermost portion of the first aquifer underlying the site. The Workplan shall include a plan for disinfection of groundwater monitoring wells that contain detectable concentrations of coliform, additional sampling to confirm disinfection was effective, and a discussion of the potential sources of coliform in the well(s). Installation of wells for Phase II land...

The following additional provision was added as Provision G.1.e:

By 2 July 2007, the Discharger shall submit a Groundwater Well Disinfection Report that describes the disinfection of the site wells, follow-up sampling results, and if bacteria is detected in the wells, additional work to control the discharge of coliform bacteria, well construction repairs, or other methods to prevent groundwater contamination with coliform. If additional work is required, the report shall include an implementation schedule.

Staff added total coliform organisms to the groundwater monitoring portion of the MRP. The analysis will be performed quarterly.

Comment No. 10 states the Discharger submitted an incomplete RWD.

Oakwood Lake Water District and Beck Properties, Inc. submitted an RWD in September 2005, to update the existing WDRs for the WWTP. Supplemental information was received on 13 January 2006, 7 February 2006, and 24 March 2006. Staff determined sufficient information to prepare tentative WDRs had been submitted and prepared a 15 June 2006, *Substantially Complete Report of Waste Discharge* letter.

Comment No. 11 states a BPTC evaluation must be conducted and submitted prior to Permit issuance, the facility is new and authorizes a significant expansion, and the Discharger is granted the maximum assimilative capacity of underlying groundwater (i.e. up to the water quality objective).

Staff notes that the Order does include an analysis of the likelihood of groundwater quality degradation and determined that the discharge is unlikely to degrade groundwater quality. This is based on the following:

- All wastewater and recycled water storage ponds will be lined with at least 40-mil thick HDPE, which will minimize percolation of waste constituents to groundwater.
- Recycled water will be applied at nutrient and hydraulic uptake rates to land application areas.
- The expansion of land application areas from the previous configuration to the proposed method represents a significant improvement over the previous wastewater system.
- The Discharger is improving the wastewater treatment system to produce tertiary recycled water. The improved recycled water quality should protect groundwater from degradation from coliform bacteria contamination.
- An Antidegradation Analysis and a Treatment and Control Practices were presented in the tentative Order (Findings 55 through 61).

A full antidegradation analysis is only required when a reasonable expectation of possible groundwater degradation exists. Based on the discussion provided above, staff believes the discharge is a low threat of groundwater degradation.

CSPA's comment on the facility being new and allowing a significant expansion is incorrect. The WWTP is being constructed in the same location of the previous wastewater treatment plant for the Oakwood Lake Resort and the previous WDRs (Order No. 5-01-113) allowed a monthly average dry weather flow rate of 81,000 gpd. However, CSPA is correct that the WWTP is new construction. The new construction includes several BPTC measures that were not included with the previous design; those improvements will result in better protection of groundwater quality than previously available. The Order limits the initial flow rate to 15,000 gpd. That flow rate is allowed while the WWTP is under construction because the mobile home park portion of the development is still occupied. Any flow rate increase over the initial flow limit requires approval of an RWER by the Executive Officer.

Comment No. 12 states the Order contains a lack of a legally defensible antidegradation analysis, a lack of information on background groundwater quality, and lacks an economic or socioeconomic analysis.

Comment No. 11 provides a discussion of the antidegradation analysis provided in the Order. Information on background groundwater quality is provided in response to Comments No. 1, 7, and 9. The antidegradation analysis in Findings 55 through 61, the WDRs, and the Information Sheet contain information, including economic information, to support the WDRs conclusion that the discharges authorized by the Order are to the maximum benefit to the people of the State and will result in compliance with the Basin Plan and other applicable plans and policies.

Comment No. 13 states the reasonable potential analysis for determining protective groundwater limitations is inadequate and groundwater limitations are not protective.

The comment states that groundwater is already polluted for a number of constituents by the Discharger and therefore has no assimilative capacity for further degradation. Staff notes that although a number of groundwater monitoring wells exist at the facility, the highest concentration of TDS and nitrogen concentrations were reported in an area where no waste has yet been applied. As discussed in the response to Comment No. 5, the Controllable Factors Policy does not require the Discharger to improve the groundwater quality at the discharge location if the background condition of the groundwater is worse than the recycled water. Staff believes the discharge will not adversely impact groundwater quality significantly. Comment No. 5 also discusses the groundwater limitation issue.

Comment No. 14 states the Monitoring and Reporting Program is inadequate because it fails to require the Discharger to monitor all waste constituents; in addition, chlorine, pH, and ammonia are not continuously monitored and fertilizers in the land application areas are not reported.

Continuous monitoring of chlorine, pH, and ammonia are not considered to be critical monitoring parameters for a land discharge facility. Turbidity will be continuously monitored and coliform organisms will be sampled daily. If a problem with the disinfection system occurs, it will be discovered quickly as a result of the coliform analyses.

Collecting continuous pH data is not considered to be a critical monitoring parameter as there is no effluent limitation on pH with one exception: Effluent Limitation E.4 which states, "No stored wastewater or recycled water shall have a pH less than 6.5 or greater than 10.0." Continuous monitoring of ammonia is not considered a critical monitoring parameter because the wastewater will not be discharged to surface water. Ammonia is expected to be oxidized in the wastewater treatment system, recycled water storage ponds, and land application areas.

The use of fertilizers has been added to Discharge Specification No. B.5 as discussed in the response to Comment No. 4 above, and a requirement to report supplemental fertilizers has been added to the MRP in the Recycled Water Land Application Area Monitoring section of the report.

SUMMARY AND RECOMMENDATION

Staff recommends that the Regional Board adopt the Waste Discharge Requirements as proposed for the Oakwood Lake Water District and Beck Properties, Inc.

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| Attachment A | Allied Engineers, 27 September 2006 Oakwood Lake Water District Tentative Waste Discharge Requirements |
| Attachment B | California Sportfishing Protection Alliance, 28 September 2006, Waste Discharge Requirements for Oakwood Lake Water District and Beck Properties, Inc. |

26 October 2006 Regional Board meeting
TRO/MRL/WSW: 10/6/06